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- An apparatus and method for determining the velocity of sound propagation in a fluid as a function of position in the fluid along an axis. A wave of acoustic energy is transmitted along the axis to produce a disturbance that moves in the medium at the velocity of sound. A laser generator transmits a light pulse substantially along the axis through the fluid medium. As the light passes through the disturbance, light backscatters in a characteristic pattern that a detector senses for analysis to provide information concerning the distance traveled and the time of travel for the acoustic wave through the fluid medium and to provide a profile of output characteristic, such as the speed of sound in the medium, as a function of position in the medium.**

18 Claims, 2 Drawing Sheets

